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Ref: 8EPR-SR

ACTION MEMORANDUM AMENDMENT

SUBJECT: Action Memorandum Amendment for a Time-Critical Removal Action at the Libby Asbestos Site, OU7, Troy, Montana.

FROM: Robert E. Roberts
Regional Administrator

TO: Susan P. Bodine
Assistant Administrator
Office of Solid Waste and Emergency Response

THROUGH: Michael B. Cook, Director
Office of Emergency and Remedial Response

Site ID#: BC
Category of Removal: Time Critical, NPL, EPA Fund-Lead

I. INTRODUCTION

The purpose of this Action Memorandum Amendment is to request and document a ceiling increase and an increase in geographical scope of clean up activities from the scope approved in the previous Action Memorandum Amendments, specifically to address contamination at the Old Troy High School (Troy School). Troy, MT, is designated as Operable Unit 7 of the Libby Asbestos Site and is located 12 miles west of the town of Libby. The previous Action Memorandum Amendment dated June 5, 2002 set forth the need and scope for additional cleanup activities at the Site. Those cleanup activities are progressing and are still considered to be of a time critical nature. However, the extent of contamination requiring immediate attention is more widespread then previously believed.

EPA Region 8 (Region 8) is also concurrently completing a remedial investigation and working toward publication of a Record of Decision (ROD) that will cover needed, but non-time critical, response actions. This Action Memorandum Amendment describes costs related to the response action at the Troy School, and the impact the costs have on the current ceiling increase that was approved in the Action Memorandum Amendment dated June 5, 2006.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal Site Evaluation

The Action Memorandum dated May 23, 2000 provides the basic description of the mine and processing facilities, and outlines EPA's initial Removal Actions at two industrial locations related to the Site. EPA approved the first Amendment to the Action Memorandum on August 17, 2001, to continue the previous activities and address contamination at new properties, which also required immediate attention. On May 2, 2002, EPA issued another Action Memorandum Amendment which expanded the cleanup to address residential and commercial properties in the general Libby area. That Action Memorandum Amendment also called for systematic removal of vermiculite insulation from properties in and around Libby. To date, though the site boundary has not been completely delineated, the focus of investigation and cleanup was limited to an approximately two hundred square mile "study" area centered on Libby. This study area includes various residential and commercial areas outside the city limits, primarily located along U.S. Highway 2 and Montana Highway 37. While briefly mentioned, Troy, MT was not included in any planned actions discussed in previous Action Memoranda.

Troy is located in Lincoln County approximately 12 miles west of Libby, connected by U.S. Highway 2. The area between the two towns contains isolated unincorporated residential areas near the Kootenai River. Most of the residential properties closer to Libby have already been investigated, and in some cases, remediated by EPA. EPA estimates that approximately 3000 people reside in the general Troy area, approximately one quarter the population of the Libby area.

Due to their proximity and relative isolation from other population centers, Libby and Troy function as a single population center. Local businesses and tradesmen serve each area and workers commute daily each way. Historically, persons from Troy utilized many Libby services, including recreational and school facilities, and were subject to many of the past asbestos exposures that Libby residents were. This trend continues. Like Libby, Troy was home to many of the miners that worked Zonolite Mountain and associated vermiculite processing centers. Just as the miners and vermiculite workers that lived in Libby brought contamination into their homes on clothes, or onto their property as soil amendment or fill, the miners who lived in Troy did as well. Consequently, many of the same conditions described in past Action Memoranda that are present in Libby are also present in Troy. Medical screening conducted in 2000 by the Agency for Toxic Substances and Disease Registry (ATSDR, 2001) included numerous persons from the Troy area. All of these persons met similar eligibility criteria for potential exposure to Libby asbestos as those from the Libby area. Though a detailed analysis specific to Troy residents has not been performed, there is no reason to expect that persons from Troy were not subject to similar elevated exposures, multiple exposure pathways, and resulting high disease rates as persons from Libby.

In general, the amphibole asbestos contamination found in the Libby/Troy area comes

from one or some combination of the following sources:

Source	Description
Vermiculite Mining Wastes	Contaminated tailings and mine overburden. Used as fill material at locations throughout Libby and Troy. Samples indicate levels as high as 80% asbestos, with typical values between 3 to 12%.
Vermiculite Concentrate	Often mixed in garden soil or in bulk piles in yards. Material ranges from trace to 12% asbestos, with typical values between 3 to 8%.
Vermiculite Processing Wastes	Two waste streams from the vermiculite expansion plants: 1) Stoner rock is a grey-white, flaky crusted reject material. Handling can easily generate high levels of airborne asbestos fibers, and contamination levels often reach as high as 35% asbestos. 2) Low-grade expanded vermiculite that contains a high percentage of unexpanded material.
Bulk Processing Residuals	Remnant materials around former processing plants and the rail corridor from the mine. Used as fill, or found in bulk piles. Usually similar in appearance and asbestos content to the wastes described above.
Tremolite Rocks	Small rocks to large boulders of amphibole asbestos, often mixed with vermiculite. Asbestos content can be as high as 80% to nearly 100%.
Vermiculite Insulation	Analysis shows that most of the vermiculite insulation found in homes and buildings in Libby contains amphibole asbestos. EPA is now finding insulation similar to that found in Libby in the older buildings in and around Troy. Vermiculite insulation is an inherently friable material (i.e., it tends to generate airborne, respirable asbestos fibers), and is resistant to encapsulation and coating techniques.
Amphibole Asbestos Dust	Contaminated dust inside the homes and businesses. EPA has collected 5332 settled dust samples from 1556 residential and/or business properties site-wide. 21.2% of these properties (11.6% of the samples collected) had identified amphibole asbestos fibers greater than 5 um in length, at levels up to 300 times above the AHERA standard. This contamination is easily re-suspended in the air during routine cleaning activities.

Due to the similar characteristics that Libby and Troy share, similar contamination sources to those documented in Libby are expected to exist in Troy, though at what prevalence is currently unknown. The Montana Department of Environmental Quality (MDEQ), through a cooperative agreement with EPA, is planning a screening investigation of the properties in Troy, similar to the Contaminant Screening Study conducted in Libby, to determine the nature and extent of contamination in Troy.

Area of Concern

Troy School

Portions of the Troy School (currently functioning as the Junior High School) attic spaces have been found to contain large amounts of vermiculite insulation. Since 2002, EPA has received several complaints from local residents and school administrators that vermiculite insulation was "trickling" down on students using the school auditorium and hallways below these areas. In December 2005, these reports increased. The Site team was informed that the custodial crew at the Troy School were "sweeping up vermiculite from the floor after the cheerleaders had been practicing on the stage." The vermiculite was leaking from the ceiling above the stage (email correspondence with Linda Newstrom, 12/07/2005). Based upon these reports, EPA's contractor, Camp, Dresser, and McKee, Inc (CDM) performed an interior inspection of the school, using guidelines established for investigations of properties in Libby (CDM 2002, 2003a). The inspection indicated two portions of the attic contain large amounts of vermiculite insulation. Additionally, in 2005, USGS analyzed the bulk insulation material and determined its origin was from the former vermiculite mine in Libby.

B. Other Actions to Date

Limited investigation work at specific properties around Troy has occurred, on a case by case basis, including the Old High School. In addition, the entire Site, which includes Troy (Operable Unit 7), was listed on the NPL in October 2002.

In December 2005, as a result of the suspected release in the Troy High School auditorium, EPA conducted a response to prevent any future release. This included "skinning" or installing a plastic liner just below the ceiling in the area of the release. This action was not considered to be a long term solution to the problem. This temporary action prevented further release until a comprehensive cleanup action could take place in the summer season when the students were not attending school. Dust samples were taken from the area following EPA's protocol for Small Scale Vermiculite Removals to ensure the area below the ceiling had not become contaminated by the release from the ceiling. The dust sample results were non-detect for Libby asbestos. This may be as a result of the custodial cleaning activities that took place following the reported release.

C. Current Actions

There are no current removal actions taking place in the Troy OU. MDEQ and EPA are currently preparing to conduct a systematic investigation of properties in the Troy area in 2006. The Troy High School response action is currently scheduled for June/July 2006.

D. State, Local, and Other Authorities Roles

There are no significant changes in roles from the May 8, 2002 Amendment.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT, AND STATUTORY AND REGULATORY AUTHORITIES

The following is a discussion of the factors used to determine the need for a Removal Action found in the National Contingency Plan at 40 CFR 300.415(b)(2) that relate to the conditions now present at the Troy School in Troy, Montana that are similar to those present at the other Operable Units for the Site, located in the Libby, MT area. The evaluation demonstrates that the conditions at the Site may present a threat to human health and/or the environment and meet the criteria for initiating a Removal Action under Section 300.415(b) of the NCP. The EPA has reviewed all criteria found in Section 300.415(b), and discusses the pertinent factors below:

Threats to Public Health or Welfare

(i). Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances or pollutants and contaminants.

- The Old Troy High School was documented to contain vermiculite insulation and reports indicate frequent releases from the attic into areas used by students. This represents an actual and potential exposure to children, who may be at the highest risk of developing asbestos-related disease. Libby asbestos contaminated source materials (e.g., indoor dust, yard and garden soils, driveway materials, vermiculite insulation) are still found throughout the community of Libby. The Action Memorandum Amendment dated May 8, 2002 described these conditions in detail (EPA Region 8, 2002). Subsequent investigations have shown that about one-third of the approximately 4000 properties in the Libby area contain varying levels of contaminated source materials, such as vermiculite insulation or contaminated soils (CDM, 2002 and 2003a). Based upon their proximity and shared characteristics, it is highly likely that some properties in Troy, such as the Troy School, are similarly contaminated to properties in Libby.

- Based upon their proximity and shared characteristics, it is highly likely that some properties in Troy are similarly contaminated to properties in Libby. Investigations in and around Libby have clearly shown elevated levels of Libby asbestos in the dust of resident's homes. (CDM, 2002, 2003a and 2003b; EPA Region 8, 2003) This dust contamination comes from several sources including but not necessarily limited to: contaminated soil at the property that is tracked into the home; contamination that was picked up at former vermiculite processing facilities in the past and brought home on clothes and equipment; releases of vermiculite insulation from the attic or walls. During the screening of the Troy School property sample results indicated trace levels of asbestos in the soil. The secondary sampling, which was conducted in order to design the cleanup,

indicated non-detect for asbestos in the soil. This is not an unusual occurrence when sampling for asbestos in soil. At times it is difficult to locate the hot spots of contamination. EPA may need to address contaminated soils at the Troy School at some future date.
Additionally, it is important to note that the students of the Troy School may be returning to homes that contain interior or exterior contamination. This presents the possibility of these students being exposed to contamination through multiple pathways.

- These asbestos contaminated source materials, when disturbed, may release asbestos fibers to the air resulting in complete exposure pathways. Actual exposure to these contaminated source materials may occur daily depending on the conditions and usage of the specific properties. Activities similar to those that are likely to be performed by area residents, students, and workers can result in elevated concentrations of respirable asbestos fibers in air. Further, concentrations of fibers in air generated by disturbance of contaminated source materials may exceed OSHA occupational standards and EPA cancer risk guidelines (EPA Region 8, 2003; Weis, 2001; Miller, 2005).

- Asbestos fibers from the Libby mine site are hazardous to humans as evidenced by the occurrence of asbestos-related disease in area residents and workers. Workers and area residents exposed to asbestos fibers from the Libby mine site have been found to have increased mortality and morbidity from asbestos-related conditions, including asbestosis, pleural fibrosis, lung cancer, and mesothelioma. Asbestos-related lung diseases have also been observed in area residents with no direct occupational exposures, including family members of mine workers, and even in those with no known association with the vermiculite mining or processing activities (Weis, 2001; Miller, 2005). A large number of local residents who were screened and found to have asbestos-related disease resided in Troy.

(iv). *High levels of hazardous substances or pollutants and contaminants in soils largely at or near the surface, that may migrate.*

- Soil contamination was found in two outdoor areas at the Troy School. These soils, if unaddressed, can cause direct exposure when disturbed through normal activities and can contaminate the interior of the school building with asbestos-containing dust. Screening level risk calculations by Region 8 suggest that the contamination of indoor dust by outdoor soils is one of the most important exposure pathways in Libby (EPA Region 8, 2003).

(vii). The availability of other appropriate federal or state mechanisms to respond to the release.

- No other Local, State, or Federal agency is in the position or has the resources to independently implement an effective response action to address the on-going threats presented at the site. EPA is coordinating its actions with State and Local authorities.

MDEQ, while taking the lead on investigation in Troy, is doing so under a grant from EPA. MDEQ does not have the resources to undertake this project on its own.

Threats to the Environment

The primary threat identified is inhalation exposure of human populations to Libby amphibole asbestos, with only secondary concerns for exposure to domestic or feral animals. The Action Memorandum dated May 23, 2000, contains additional discussion about potential threats to the environment.

IV. ENDANGERMENT DETERMINATION

The actual or threatened releases from this Site, if not addressed by continuing to implement the response actions set forth the in the original Action Memorandum and subsequent Amendments, may present an imminent and substantial endangerment to public health, welfare, or the environment. The original Action Memorandum for the Site, dated May 23, 2000 (EPA Region 8, 2000), as well as subsequent Amendments (2002, 2005), describe in detail the toxicity associated with Libby asbestos, the significantly elevated disease rate in Libby residents, and the variety of conditions present in and around Libby that lead to continuing exposures (Weis, 2001; Miller, 2005). Conditions at the Old Troy High School present an actual and potential exposure to children and are similar to properties currently being addressed in Libby.

V. EXEMPTION FROM STATUTORY LIMITS

The original Libby Action Memorandum dated May 23, 2000 provided the documentation required to meet the NCP Section 300.415(b)(2) criteria for a Removal Action and the NCP Section 300.415(b)(5)(i) emergency exemption from the $2 million and one year limits on Removal Actions. The conditions necessitating Removal Actions and the emergency exemption still exist in Libby, and have recently been found to exist in Troy as well. Region 8 is formally requesting an increase in scope to effectively respond to actual and threatened releases at the Troy High School.

Proposed Removal Actions in Troy are appropriate and expected to be consistent with future Remedial Actions, and thus meet the criteria for a consistency exemption from the $2 million and one year limits on Removal Actions as set forth in Section 300.415(b)(5)(ii) of the NCP. There are several reasons for this:

- Libby Asbestos, the contaminant of concern in Libby and Troy, is a naturally occurring mineral. There are no known treatment technologies that can diminish or reduce the toxicity of asbestos. Cleanup options are limited for addressing exposure to asbestos.

- Because asbestos use was widespread in the past, the *basic* approach for asbestos

abatement is well understood. There are a limited number of options available for cleanup. Most importantly, when asbestos is determined to be friable, the preferred mechanism to address potential exposures is to remove the source.

- The primary objective of the Removal Action at the Troy School is to remove or isolate the source of contamination in the attic spaces. Any future Remedial Actions will likely employ source removal as a key component of cleanup and response.
- While the *basic* approach to asbestos cleanup is well understood and relatively simple, the degree to which cleanup is necessary, and exactly which situations require cleanup, is *not* well understood or simple. A large degree uncertainty exists in the scientific community as to (1) what constitutes a "safe" level of asbestos in soil, dust, and other media and (2) how to effectively measure these levels. This makes establishment of site-specific action levels extremely challenging. However, to ensure that Removal Actions are protective and consistent with future Remedial Actions at the Libby Site, Region 8 has taken a conservative approach and adopted protocols that we believe will ensure we will not have to clean up a property twice. In general, EPA starts cleanup only if a property has conditions that warrant emergency response, but once a cleanup occurs, EPA remediates to a level expected to be protective for the long-term. Post-cleanup sampling has validated the efficacy of the cleanups in Libby (CDM, 2003c, 2004). This approach ensures the worst risks are addressed first and is cost-effective, protective, and well accepted by the community and the State of Montana. The same approach will be used in Troy at the Troy School.

VI. PROPOSED ACTIONS AND ESTIMATED COSTS

A. Proposed Action Description

Troy School

EPA plans to remove vermiculite from the attic using the same best management practices set forth in the Libby Asbestos Site Response Action Work Plan (CDM, 2003b). The basic approach to removal of vermiculite insulation and amphibole asbestos contaminated soil for a property will be as follows:

- Establishment of asbestos controls including physical barriers, negative air, decontamination/entry/exit corridor.
- Bulk removal of vermiculite insulation from attic spaces above the auditorium and the hallway entrance
- Restoration as needed.

B. Contribution to remedial performance

The Libby Asbestos Site was made final on the NPL in October 2002. Collection of information and data necessary to perform a Baseline Risk Assessment and a Remedial Investigation/Feasibility Study, and ultimately to write a Record of Decision, is occurring

concurrently with the conduct of the Removal Actions in Libby. Information and experience gained during the removal actions is used to continually refine the process and to plan for future work. Likewise, as more information is learned about the nature of the contamination and the risks presented, adjustments to the cleanup approach are made as necessary. The most contaminated properties are targeted first, and as discussed in Section V of this Amendment, EPA has tried to ensure that properties are cleaned to a sufficient level such that cleanup must only occur once. This approach is protective as well as cost effective. It is expected that the cleanup approaches used during Removal Actions will be similar to, and consistent with, those used during Remedial Actions.

C. Description of alternative technologies

EPA attempts to employ the most appropriate technologies for addressing risks, but there are no known alternative technologies available at this time for addressing asbestos.

D. EE/CA

No EE/CA is required.

E. Applicable or relevant and appropriate requirements

See the Federal and State ARARs identified and/or discussed in the original Action Memorandum dated May 23, 2000.

F. Project Schedule

Clean up of the Old High School is slated to commence around June/July 2006. Duration of the work is expected to take between two and two and one half weeks.

G. Estimated Costs

Table 1. Proposed Site Ceiling: The costs for the response action at the Troy School are presented below. These costs are counted against the last ceiling increase, which was approved in 2006. Currently, there is an Action Memorandum Amendment being prepared that requests a further ceiling increase.

Category	Approved Ceiling (Action Memo Amendment dated June, 2006)	Proposed Ceiling Increase	Proposed Total
Extramural Costs	$75,525,000	$120,000	$75,645,000
Contingency @ 20% of Extramural	$15,100,000	$24,000	$15,124,000
Intramural Costs	$1,060,000	$8,000	$1,068,000
TOTAL	**$91,685,000**	**$152,000**	**$91,837,000**

VII. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action will result in continued public exposure to unsafe amounts of amphibole asbestos. This will increase the risk to public health, specifically students at the Old Troy High School and continue to burden an already impacted community.

VIII. OUTSTANDING POLICY ISSUES

There are no new policy issues or considerations.

IX. ENFORCEMENT

A confidential summary of Enforcement Actions was included as a separate document

with previous Action Memo Amendments.

X. RECOMMENDATION

This decision document represents the selected Removal Action for the removal of Libby asbestos sources from the Troy School in Troy, MT at the Libby Asbestos Site in Lincoln County, Montana. The proposed removal actions have been developed in accordance with CERCLA as amended and are consistent with the NCP. The decision is based on the Administrative Record for the Site.

Conditions at the Site, including Operable Unit 7, meet the NCP [40 CFR § 300.415(b)] criteria for a Removal Action, and the NCP [40 CFR § 300.415(b)(5)(i)] and [40 CFR § 300.415(b)(5)(ii)] criteria for exemptions from the statutory limits. I recommend your formal approval of the proposed geographical expansion of the scope of cleanup activities and the Removal Action ceiling increase.

Approve: _____ Date: _____
Susan P. Bodine
Assistant Administrator
Office of Solid Waste and Emergency Response

Disapprove: _____ Date: _____
Susan P. Bodine
Assistant Administrator
Office of Solid Waste and Emergency Response

REFERENCES

CDM, 2002. Sampling and Analysis Plan, Remedial Investigation, Contaminant Screening Study, Libby Asbestos Site, Operable Unit 4. April 30, 2002.

CDM 2003a. Sampling and Analysis Plan, Revision 1, Remedial Investigation, Contaminant Screening Study, Libby Asbestos Site, Operable Unit 4. May, 2003

CDM 2003b. Response Action Work Plan, Libby Asbestos Site, November 25, 2003.

CDM 2003c. Sampling and Analysis Plan Addendum, Post-Cleanup Evaluation Sampling, Remedial Investigation, Contaminant Screening Study, Libby Asbestos Site, Operable Unit 4. December 1, 2003.

CDM 2004. Technical Memorandum: Contaminant Screening Study, Post Cleanup Evaluation Sampling, Libby Asbestos Site, Operable Unit 4. September 1, 2004.

EPA Region 8, 2000. Action Memorandum, Libby Asbestos Site, May 23, 2000.

EPA Region 8, 2002. Action Memorandum Amendment, Libby Asbestos Site, May 8, 2002.

EPA Region 8, 2003. US EPA Technical Memorandum: Libby Asbestos Site Residential/Commercial Cleanup Action Level and Clearance Criteria. December, 15, 2003.

Miller, 2005. *Amphibole Mineral Fiber Contamination of Various Source Materials in Residential and Commercial Areas of Libby Pose an Imminent and Substantial Endangerment to Public Health.* Memorandum from Aubrey Miller, USEPA Regional Medical Officer and Toxicologist, to Jim Christiansen, USEPA Remedial Project Manager for the Libby Asbestos Site. Dated 6/27/2005. US EPA, Region 8

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